DATA PROCESSING DIGEST

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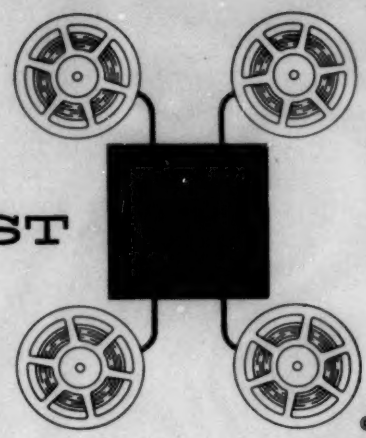

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LIBRARY

Information Retrieval

ON THE INFORMATION PROBLEM AHEAD

L. B. Heilprin, Council on Library Resources, Washington, D.C.
AMERICAN DOCUMENTATION, January 1961; pages 6-14

Civilization is held together by messages, both current and contemporary, and historical and cultural. The first type of message is being fairly well handled, but the second type, comprising the world's stored information, is becoming increasingly critical.

To solve this problem, it will be necessary to understand the functioning of the human brain, which is, in itself, the largest stored-information body. It is the storing of information in an easily accessible manner that poses the biggest problem. It is this area in which an understanding of the functioning of the brain is most needed. No library catalog devised thus far has been able to duplicate the continuous process of association which the brain uses to call up information and associations which lead to the desired conclusion. Indeed, to fashion such a network would expend more intellectual labor and facilities than any organization or even the world is willing to afford.

It appears that the problem will need a national or international agency to find the solution. In addition, there must be discovered or devised "some new, immensely richer system of associating stored records....It would be necessary to develop machines that perform some of the functions of the mind in indexing and abstracting....A continuous monitoring by first-rank thinkers would probably be required, as well as maintenance by teams of lesser attendants. Another probable necessity will be a more scientific attitude toward the degree of precision with which such a system can operate," since "the degree of relevancy with which any idea can be pursued through our external network of knowledge will always depend on the degree to which associations have been performed by humans or machines. As knowledge advances, these associations will have to be updated, revised, and reassociated into ever finer-meshed networks."

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We do not have the choice as to whether or not we will follow such a program. "Any halt or reversal of the advance of knowledge or of the transmission of education would be a reversion to chaos. The long-term price for neglecting to perform the process is therefore very high--the extinction of our species. On a short-term basis the price is still high--loss of political and economic supremacy to competitors who do not neglect it."

THESAURUS—A NEW WORD IN DOCUMENTATION

B. C. Vickery
JOURNAL OF DOCUMENTATION, December 1960; pages 181-189

A thesaurus in information retrieval can act in the same manner as Roget's Thesaurus acts for the word-poor author. "Such a thesaurus serves a purpose not served by the conventional tools of retrieval (subject-heading list, classification schedule)--it leads the indexer and searcher from text-word or search-word to key-word."

It may also be considered as "a complex network of relations between words, in which the distinction between text-words and key-words is blurred. In this case the 'thesaurus' is like a complex cross-reference structure, and its purpose is essentially that of the cross-reference ...." Lattice and word-association matrix are other suggestions for the precise definition of "thesaurus" in information retrieval. In such a use, "all the key-words...used in a retrieval system enter into a complex network or lattice of relations. For practical use, the key-words must be listed linearly, and the network of relations can then be displayed only by sequence...or by cross-reference.... When key-words are assigned to texts in association...a complex network of lattice of relations is formed. This network too must be displayed linearly.... The network of key-words in a schedule is part of a larger network of words occurring in texts."

THE "MISSING LINK" IN DATA PROCESSING SYSTEMS

John R. Malone, Foundation for a Compatible and Consistent Alphabet
AUTOMATIC CONTROL, January 1961; pages 52-55

One of the difficulties in handling alphabetic information in EDP systems is the problem of converting the alphabet to binary characters, caused by the fact that the English language has 144 ways of spelling its 40 sounds. In addition, the transfer of English idiom to the international arena is becoming ever more tedious.

What is needed is an English alphabet which a) is codable to binary data by simple devices, b) is fully representative of the range of English sounds, c) is consistent with most usages in Latin-alphabet based languages, d) is broad enough to simply transliterate most other industrial society languages, and e) is sufficiently close to present configurations to present a minimum of re-training by English-speaking people. A suggested 40-phoneme alphabet is described and illustrated. It would look something like this:

DΔTΛ PROCEC+И DΔJECT*

* The alphabet is copyrighted by the author

General Information

THE MANAGEMENT CONCEPT IN ELECTRONIC SYSTEMS

Virgil F. Blank, Haskins & Sells, San Francisco, California
THE JOURNAL OF ACCOUNTANCY, January 1961; pages 59-66

Many of the currently operating EDP systems seem to have been installed merely to become a super punched-card system, to do some large-volume accounting job which promises cost-reduction, to do a specific "problem area" job, or to be the experimental forerunner of a larger expanded system at a later time. None of these approaches realizes the tremendous potential of EDP as an engineered system for the benefit of management decision-making. "An engineered approach to system development is based on a frame of mind...which accepts the business enterprise as a high order system composed of interdependent parts...people and their methods and procedures of sales, production, purchasing, accounting, etc., working toward a common goal. These parts are usually separated into departments for organization reasons, but not for data-processing reasons. In systems development, then, the organizational structure must give way to the data-flow structure. The business system, being interdependent, acts like any servo-mechanical system.... There is a balance of relative effectiveness of each part within the enterprise acting in relationship with every other part to produce the performance of the whole system." The balance among these relationships is usually achieved "by exercise of management control based on timely, proper, and accurate data."

Making proper use of EDP equipment in the engineered systems manner imposes some problems and responsibilities on management.

Systems engineering stresses information flow, not departments

1. "The EDP systems group should be the responsibility of top management. It would be preferable to locate this group close to the executive vice president or someone of similar stature."

2. "A study of this size should be a team effort, and it is desirable to include in active participation an outside consultant specializing in this field as well as selected representatives from company management."

3. "Top management must supply sufficient funds for preliminary study and installation. The budget for these phases must be prepared by the EDP group leader, so he must be acquainted with management policy in this regard and also must be adept at long-range planning."

4. "Top management must become genuinely interested in and give active support to the entire concept of EDP. This drive must carry middle management by influence and be extended to operational levels by education."

Management participation can be encouraged by holding periodic meetings in which key system personnel, top management, outside consultants, and representatives of the equipment company should participate. Also present, those departmental heads in whose department systems work is being done currently. A well-conceived program of employee and executive education should be included in the overall plan.

PUNCHED CARD AND/OR ELECTRONIC COMPUTER FEASIBILITY STUDY

Bert Lockwood, North American Aviation, Inc., Los Angeles, California
COST AND MANAGEMENT, January 1961; pages 3-8

Some suggestions are given for conducting a study of the potential for mechanization of a business system. In planning for the problem analysis, these points should be considered:

1. Do not limit the evaluations to a single-unit application, but plan in terms of the over-all business.

2. After the over-all plan is determined, plan single-unit applications that fit in with the larger plan.

3. Do not use present methods as criteria for the automated system, but consider new techniques which will produce a more efficient system.

Data accumulated in this way will make it possible to determine what equipment is needed, which areas of activity will be affected and how they may be integrated, and the volume of data to be processed along with the cycle time of reporting.

A basic philosophy for beginning a problem analysis may be built around the following fundamentals:

1. Any operation no matter what size has a purpose and function to perform in the over-all scheme of things.

2. An organization is composed of a series of interlocking functions which may be defined and coordinated to reveal the basic and secondary functions.

3. Each unit has specific responsibilities, in the discharge of which decisions are made which become the data that describe the true functional activity of the unit.

Decisions in logical sequence

"By arranging, in logical sequences, the decisions to be made in discharging any given responsibility and providing for the interlocking activities resulting from these decisions, one can develop an optimum work flow or procedure. This provides a sound base from which an evaluation of various types of automation equipment, their abilities, and their potential uses can be conducted.

After the general format of operations has been determined, the economics of the system and the education required to implement the system may be considered. The economics breaks down into two parts:

Tangible or direct savings--"the decrease in cost resulting when the present operation is replaced by the proposed operation." These include personnel, floor space, personnel turnover, supervision, and consolidation of operations.

Intangible savings--savings resulting from new or better reporting, timing of reports, or better methods and procedures.

Education needs to be considered at three levels: management, operational, and at the level of personnel having to do with preparation of input data.

THE WINNER

OFFICE MAGAZINE (Brit.), January 1961; page 35

A.B.A.'S COMMON MACHINE LANGUAGE TYPE FONTS ARE ADOPTED BY LONDON BANKS

BANKING, January 1961; page 98

The London Clearing Banks have decided to adopt the E-13B type font developed by the American Bankers Association. "The subcommittee felt that 'substantial advantages could flow from the employment of a machine language common to the two largest English-speaking communities.'"

TOTAL SYSTEM CONCEPT IN ACTION AT BELL HELICOPTER

PAPERWORK SIMPLIFICATION, 4th issue, 1960; pages 5-7

Bell Helicopter has taken the total system concept approach to the company's data processing needs by designing a single system that cuts across existing department boundaries and bringing all major operating systems into one functional organization. In processing orders for helicopters which do not require new engineering design, Bell "has only to state the basic order information in punched card form. From this, the computer develops all data necessary to carry out the interrelated functions of buying, receiving, storing, production scheduling, dispatching and control, shipping, billing and accounting. Optional management decisions are entered, on the basis of human editing, only after all the basic data processing work is done to carry out all the above functions."

Departmental lines have not been erased. But duplication of paperwork, records, and manual effort have been eliminated through consolidating functions. The total system concept was initiated by Bell's top management which formed a top-level management committee to spearhead the project. The committee includes the executive vice president, vice president in charge of engineering, vice president in charge of manufacturing, treasurer, director of industrial engineering, and manager of data processing. Each of the top executives appointed responsible persons from departments under him to receive EDP training and assist with conversion. This served to bring experience from the various departments into the committee, and to make the operational departments an integral part of the changes.

BANK EXPLAINS MICR, SELLS CHECKS IN LOBBY SHOW RUN BY THE STAFF

BANKING, January 1961; page 72

One way to get the interest and cooperation of the bank customers in the new EDP plan is to display some of the new equipment and let them see how it works. The First National Bank in Dallas did this, and in addition, set up a check-ordering desk next to it.

Preparation of the staff was begun months in advance. "At a series of small group meetings President Robert H. Stewart III introduced the system to the staff and an officer from the automation team explained the prospective operation. Not until all the personnel had been thus informed was the story released to the newspapers. Printed bulletins have kept the staff abreast of progress, always in advance of announcements to the public."

OFFICE WILL RUN EVERY BUSINESS ACTIVITY

Ralph E. Weindling, John Diebold & Associates, Inc.
OFFICE MANAGEMENT AND AMERICAN BUSINESS, January 1961; pages 12-15

It is expected that the office will change from "a series of scattered activities throughout the company concerned largely with historical recordkeeping and reporting, into an integral part of the executive and decision-making process, serving as a nucleus around which the internal activities of the organization revolve.... It will make middle management executive decisions, on the basis of policies established with the help of all the tools and techniques that science can offer top management...."

Management must plan ahead for the proper use of electronics. The U.S. Navy has data processing plans for more than 10 years in the future. "Each step or acquisition that is taken by the separate commands is reviewed in the light of this basic plan.... The plan is constantly reviewed, and day-to-day decisions are made with full recognition of existing organizational and immediate operating factors."

INTROSPECTIVE SYSTEMS CONDEMNED

OFFICE EQUIPMENT AND METHODS, January 1961; page 19

One aspect of EDP system design which many computer users forget is the effect of their system output on their customers (or vendors). Some vivid descriptions are given in this editorial of the inconveniences experienced by companies on the receiving end of ill-conceived and poorly designed printout paper produced by some of Canada's largest EDP installations. For example, one company lists surnames and initials in certificate number sequence, whereas the outside company using the list must have the names in alphabetic order. In another instance, a company has been receiving from an "automated" company single invoices, which are more than one page in length, split up among numerous envelopes and stapled inconveniently in the center. The company must spend much time assembling all the bits and pieces before the invoices can be processed. In both cases, as well as others mentioned, simple consideration of the way in which the company's output is to be used would have prevented such situations.

THE PERSONNEL SIDE OF AUTOMATIC DATA PROCESSING

Maurice F. Ronayne
PUBLIC PERSONNEL REVIEW, October 1960; pages 243-248

"Five causes that might be cited for personnel resistance to ADP are inertia, kingdom building, loss of use of skills, fear of losing jobs, and unwillingness to learn new jobs. Each of these obstacles can be eliminated by a good human relations program based on education.... One of the best top-management-supported programs in government is the Veterans Administration. Its Administrator's.... replies to employee questions appear in 'A Chat With the Administrator About ADP and You,' a model pamphlet worthy of copy elsewhere."

Electronic data processing systems should be re-evaluated in two or three years to measure their relationship to administrative and technological changes made during the period. The Commonwealth of Pennsylvania has established a technical advisory committee, made up of persons representing organizations which have ADP systems. These people come from federal installations, steel companies, airlines, insurance firms, and universities. They consider such questions as whether the state should consider centralization, continue as-is, decentralize, expand operations, or set up a full-time service center.

WHAT ELECTRONICS CAN DO FOR YOUR COMPANY

DUN'S REVIEW, January 1961, pages 40-44

A review of the way in which electronics has invaded the industrial world is given, including the way in which computers are being used for research and development efforts, process control, and communications.

Systems Engineering

GENERAL INFORMATION MANUAL, ADVANCED ANALYSIS METHOD FOR INTEGRATED ELECTRONIC DATA PROCESSING

Orren Y. Evans, Hunt Foods and Industries, Inc., Fullerton, California
Published by IBM Corporation.

DPD readers who inquired about the Evans Table and its use in systems engineering after seeing a description of it in the April 1960 issue (page 19) were pleased to hear that IBM was publishing the procedure and would make it available upon request. The manual will be of most help to those who already know about the method and are ready to use it. The manual plunges immediately into the how-to aspects of the method without any preliminary. It would be better if there were an explanation of what the procedure is for, why it is better than other procedures, and the reasoning behind its development. You may get a copy of the manual by writing to IBM Corporation, Data Processing Division, 112 East Post Road, White Plains, New York. If you are not familiar with the method, the Digest description mentioned above is the only readily available information we know about.

Programing and Operation

COPE (CONSOLE OPERATOR PROFICIENCY EXAMINATION)

David Farbman and Richard Ketover
COMMUNICATIONS OF A.C.M., December 1960; pages 661, 662

Because of the increasing complexity of computer installations and the growing sophistication of the programs they process, programers can no longer "be expected to have sufficient technical knowledge to make unaided diagnoses of all conditions that arise during program testing and debugging; nor can they be 'on call' to trouble-shoot stoppages during normal 'three shift' operation. The natural result is a growing reliance on the operator for technical assistance. This means an increasingly high standard for the operator." The greater difficulty in recruiting and training good operators resulting from this situation calls for the development of accurate training aids and testing devices.

An accurate test of IBM 705 operating ability

A test has been developed and may be obtained from the Computer Usage Company, Inc., 18 East 41st Street, New York 17, N. Y. This test is called COPE (Console Operator Proficiency Examination), and has proved to be extremely accurate as a measure of IBM 705 console operating ability. Similar programs could be developed for other computers.

The test is divided into three parts. "Phase I requires the execution of simple input-output commands and elementary storing and displaying in response to typewriter directions. Phase II requires a response to more sophisticated input-output commands as well as storing and displaying. It also tests a knowledge of the function and location of the various indicators and registers of the 705. Phase III contains a program which deliberately causes eleven different error conditions, each of which the console operator must identify and act upon.... An analysis of the printer scoring (which is automatically produced at the end of each phase) plus the opinion of the proctor observing the examinee yield a realistic appraisal of the examinee's skill and experience.

PROGRAMME TESTING FOR A LARGE-SCALE A.D.P. APPLICATION

O & M BULLETIN, October 1960; pages 205-217

In considering preparations for machine testing "the objective will always be to complete the testing of programmes as efficiently and as economically as possible. But what may be considered economical in one case and at one time may not necessarily appear to be so in another case or at another time. For example, where unlimited machine time is available on an otherwise unproductive machine the position is entirely different from that in which available machine time is limited, has to be purchased, or is subject to the competitive priorities of other applications. Similarly, something which might be considered economical when fighting against time a month before the machine is due to start operating would almost certainly not be so regarded some twelve months earlier."

Early in the planning, the equipment manufacturer should suggest similar installations which could make time available for testing. There are two alternatives for testing: test routines directly on the computer as many times as needed, or eliminate before testing as many errors as possible by visual checks at the expense of a certain amount of programers' time. Whatever system of testing is used, it must be acceptable to the organization whose computer is being used. A suggested plan for testing programs is described, based on the method used by the Royal Army Pay Corps (England).

Applications

CREDIT MANAGER'S ROLE IF COMPANY GOES EDP

Paul A. Henschen, Price Waterhouse & Co., St. Louis, Missouri
CREDIT AND FINANCIAL MANAGEMENT, January 1961; pages 20, 21, 40

The checking of credit status has look-up characteristics which are well suited to electronic data processing. "This look-up operation can be programed so that the order number, customer number, and order amount for each order can be read into the computer from cards or paper tape, separately keypunched or punched as a by-product of the order writing operation. The computer then would automatically compare the order with the credit rating data and accounts receivable data, and reject those accounts that cannot be approved for credit on an automatic basis.... All orders which cannot be approved automatically could be read out on a reject tape to show the order number, customer number, reason for rejection, and, where applicable, credit rating and accounts receivable data."

In the collection function, promptness of follow-up can be facilitated by the EDP system. Other possibilities for EDP in credit operations include the selection of accounts to follow up for current credit reports and the actual preparation of the inquiry tickets. These functions could be performed on a daily basis. An example of the way in which the credit function could be served within the framework of an EDP accounting system is shown in the remainder of the article.

JOHNSON'S WAX SHARPENS ITS MANAGEMENT REFLEXES

MANAGEMENT AND BUSINESS AUTOMATION, January 1961; pages 24-28, 44, 45

Johnson's Wax has a computer system which links 23 warehouses and sales offices to its NCR 304 data processing center. The system can adjust Johnson's distribution, production, and purchasing plans on a day-to-day and week-to-week basis, a favorable situation in the dynamic household product business with its continual competition for supermarket shelf space. Punched tape received from the branches over leased wire is accumulated and processed directly by the computer during the night. The system enables the company to ship an invoice within 24 hours after receipt of customer's order. Even orders requiring the credit manager's approval can be processed promptly. Turnover in finished goods inventory has increased from less than six to more than seven times a year, resulting in an inventory reduction equal to the cost of the computer.

COMPUTER CHECKS SURVEY PLANS

OFFICE EQUIPMENT & METHODS, January 1961; pages 24, 25

The Surveys Division of the Office of the Ontario (Canada) Director of Titles uses a Burroughs 205 at a computing center to check the accuracy of plot plans. The plans are mailed to Ottawa in the evening, processed the next day at the center, and received back at the land titles office the next morning. "Before the use of the computer, the manual calculations were time consuming and subject to error. It took thirty days for one man to check and double check 6000 courses, a course being one side of a lot. At the Burroughs centre the two vital factors of a plan, the bearing and distances of each course, are written out on special forms and then punched on paper tape. The tape is run on the 205 computer, trigometrical formulae are applied and the measurements proved or disproved for each lot. The time required is estimated at about 15 seconds for each lot."

CAN A COMPUTER TELL YOU WHERE TO LOCATE STORES?

CHAIN STORE AGE, January 1961; pages E27, E38

Application of the right formula can help in selecting the right store location, say the executives of Rayco chain of auto accessories, but then human judgment must come on the scene. Thirty-four factors are used by the firm to narrow the choice of locations mathematically and on the computer, then these locations are reviewed by the real estate executives for final selection. The formulas are revised as the stores add items to their lines.

A NEW PURCHASING CONCEPT: BUYER-SELLER AUTOMATION

PURCHASING, December 19, 1960; pages 70-73, 168

The Air Transport Association has devised a standardized buying system called ATA Spec. 200 for mechanized purchasing. The system works with as little as one keypunch unit allowing small businesses which are not in the large computer class to take advantage of the system. The spec has been build around transaction codes covering every aspect of purchase order handling. The ATA Spec. 200 procedure has been published in manual form by Air Transport Association, Washington, D. C.

THE ELECTRONIC MACHINE AND YOU

Martin T. Hering, The Peoples Gas Light & Coke Company
AMERICAN GAS ASSOCIATION MONTHLY, December 1960; pages 23, 24

One of the difficulties in public utility billing is making the records readily available for rapid lookup in the event of customer inquiry. In the method described in this article for setting up a utility accounting procedure for electronic data processing "practically all inquiries can be answered by referring to no more than three listings: the billing register, the most recent accounts receivable listing and cumulative change listing. The current day's listings reflect all changes, due to cash, orders and adjustments that were received the previous day. Copies of this listing can be filed in a centralized location and additional copies transmitted to district offices where interview clerks and other customer contact people can immediately satisfy most customer inquiries without telephoning the central office for information."

Points of Interest

The Michigan National Bank has installed a complete Burroughs electronic banking system, linking the Burroughs B 301 high-speed check sorter-reader-converter system with a Burroughs 220 electronic system and Burroughs high speed printers which automatically produce customer account statements and ledger records.

Remington Rand has developed the Univac Photoelectric Key Verifier which verifies punched 90-column tab cards.

The Washington, D. C. chapter of A. C. M. and the Board of Education of Montgomery County, Maryland, are jointly sponsoring Saturday morning classes for juniors and seniors in high school in electronic computers.

ComputerMat, Inc., Los Angeles, is a do-it-yourself computing center offering computer time on a self-serve basis. The center has an IBM 1620 system designed specifically for engineering and scientific computation.

National Cash Register has opened its New York computing center, equipped with an NCR 390. Large centers will be opened in New York, Los Angeles, and Dayton, Ohio, featuring the NCR 304.

Gille Associates, 22 Book Tower, Detroit 26, Michigan, has published Volume II of the Data Processing Annual Reference Guide, including computer, punched card, and tape applications, a computer comparison chart and bibliographical index. Price, $15.00.

College Board examinations are now being graded and interpreted by an RCA 501 at the Educational Testing Service, Princeton, New Jersey, to provide schools and colleges with more information about individual students than ever before.

The General Accounting Office of the U.S. Government has made a report to Congress in which it points out that "ADP has had the effect of concentrating certain Government functions and creating more Government jobs in the central locations where the ADP equipment is situated, and of wiping out operations and jobs in local and regional offices.... The net result is a gain in patronage by some Congressmen and Senators and a loss by others." Other highlights in the report: "Of the 540 computers in use in the Federal Government as of June 30, 1960, only 85 had been purchased." It is the opinion of the GAO that more agencies should consider purchasing equipment. Also, it was recommended that the following agencies work for a coordinated joint program in ADP: Budget, Civil Service, General Services, Treasury, Standards, Defense, and General Accounting. In conclusion the report suggests the Bureau of the Budget "occupies a position in the executive branch which makes it the logical agency to exercise the kind of central leadership needed.... However... more recognition needs to be given to the far-reaching role which electronic systems seem destined to play in governmental processes and the related need for sound planning for their use. Therefore... the Bureau should extend its role to include more positive central planning within the executive branch...." Copies of the report may be ordered from Accounting and Auditing Policy Staff Library, Room 6133, General Accounting Office, Washington 25, D. C., $1.00 each, accompanying order. ((From EDP Weekly))

The American Can Company is using a Bendix G-15 to correlate data on toxicity in food additives and package components.

Systronics, a new company in Torrance, California, has announced the development of two new products--a simplified tabulating card reader, and a punched tape reader, both having the trade name Raeden. These products are said to be considerably under prevailing prices for similar equipment.

Data processing centers in Canada and the U.S. have formed the Association of Data Processing Service Organizations (ADAPSO) to maintain high performance standards and improve their service to business and science. The organization is committed to maintenance of high service center performance and ethical standards. Information about the group may be obtained from W. H. Evans, Executive Vice President, Association of Data Processing Service Organizations, 1000 Highland Avenue, Abingdon, Pennsylvania.

Uptime Corporation of Denver, Colorado, has announced availability of their Speedreader 2000, using photo-sensing to read punched cards at speeds of from 400 to 3000 cards per minute.

The Bell System Data-Phone systems are now being used in more than 1000 installations, and the company expects to have 10,000 in operation by the end of 1961. The largest installation to date is in the Hardware Mutuals--Sentry Life Insurance group where 36 Data-Phone sets will link the branches to the data processing center in Stevens Point, Wisconsin.

MAY WE CORRECT AN IMPRESSION?

Some confusion about the stand of the RRI Optical Standards Committee may result from the way in which we digested the excellent study "Optical Scanning--an Unlimited Horizon (MANAGEMENT AND BUSINESS AUTOMATION, September 1960; digested in DATA PROCESSING DIGEST, December 1960, pages 1 and 2). Mr. Henry F. Sherwood of Touche, Ross, Bailey and Smart is Chairman of the RRI Optical Standards Committee and a member of the Standardization Committee X3-1, sponsored jointly by the Office Equipment Manufacturers Institute and the American Standards Association. Although he was not directly quoted in the digest, the quotes from the original article may give that impression. Both of the committees on which Mr. Sherwood serves are absolutely impartial in their consideration of the type fonts being developed by the computer manufacturers. A year ago, in an interim report released by the RRI, Mr. Sherwood said that "there is serious reason to doubt that retailers in a given city would all agree to exclusively utilize a certain manufacturer's reading equipment.... If we can't agree on a common type font, then the alternative may be to look for equipment which is able to read various type fonts."

Mr. Sherwood will present a progress report on automatic character recognition at the Conference on Systems and Procedures at San Francisco, April 21, 1961 (See MEETING section, page 19). We hope to publish a digest of his report in the May issue.

Comment

A READING LIST

Editors' choice

In this, the fifth annual suggested reading list presented in Data Processing Digest, we have made a selection of representative literature from five general areas of study in the EDP and related fields. Not all of these are for the newcomer to EDP. Some of them represent sophisticated thinking at the edge of EDP knowledge. Others are the most definitive works written so far in their field. They represent, in our opinion, the best to date, that has been reviewed in Data Processing Digest. Each listing is followed by a reference to its appearance in the Digest, shown by three hyphenated numbers. These represent in order, the volume, the month, and the page in which the digest or review appeared.

GENERAL INFORMATION

Electronic Data Processing for Business and Industry
Richard G. Canning; John Wiley & Sons, 1956 (2-4-7)

Installing Electronic Data Processing Systems
Richard G. Canning; John Wiley & Sons, 1957 (4-2-3)

Cutting the Cost of Your EDP Installation
Canning, Sisson and Associates, 1958 (4-10-6)

Supplement to Cutting the Cost of Your EDP Installation
Canning, Sisson and Associates, 1960 (6-9-5)

Executive Control and Data Processing
Lowell H. Hattery; Anderson Kramer Associates, 1959 (6-2-8)

Computers and People
John A. Postley; McGraw-Hill Book Co., 1960 (6-4-7)

Automatic Data-Processing Systems
Robert H. Gregory and Richard L. Van Horn; Wadsworth Publishing Co., 1960 (6-7-1)

Computers and How They Work
James D. Fahnestock; Ziff-Davis Co., 1959 (6-7-3)

The Arithmetic of Computers
Norman A. Crowder; Doubleday & Co., 1960 (6-10-1)

MANAGEMENT SCIENCES

Introduction to Operations Research
Churchman, Ackoff, Arnoff; John Wiley & Sons, 1957 (3-3-8)

Top Management Decision Simulation--The AMA Approach
American Management Association, 1957 (4-2-6)

Dynamic Management Decision Games
Greene and Sisson; John Wiley & Sons, 1959 (5-9-4)

Operations Research (A Bibliography)
James H. Batchelor; St. Louis University Press, 1959 (6-4-11)

SYSTEMS DESIGN

Systems and Procedures--A Handbook for Business and Industry
Victor Lazzaro, editor; Prentice-Hall, 1959 (5-7-11)

Information Process Analysis
Burton Grad; The Journal of Industrial Engineering, Nov-Dec 1959 (6-3-1)

The Evans Table--A Procedure-Oriented Language (Comment) (6-4-19)

PROGRAMING

Generalization: Key to Successful Electronic Data Processing
W. C. McGee; Journal of A. C. M., January 1959 (5-4-1)

A Re-Evaluation of Generalization
W. C. McGee and H. Tellier; Datamation, July-Aug 1960 (6-10-16)

Programming Business Computers
McCracken, Weiss, Lee; John Wiley & Sons, 1959 (5-10-11)

Time Sharing in Large Fast Computers
C. Strachey; Computers and Automation, August 1959 (6-1-1)

STEPS--A Management Game for Programming Supervisors
Robert Boguslaw and Warren Pelton; Datamation, Nov-Dec 1959 (6-1-2)

Multiprogramming STETCH: Feasibility Considerations
Codd, Lowry, McDonough, Scalzi; Communications of A. C. M., November 1959 (6-4-15)

COBOL--Common Language for Computers
Robert W. Bemer; Management and Business Automation, March 1960 (6-5-15)

EQUIPMENT

Office Automation Updating Service
R. Hunt Brown, Automation Consultants, Inc. (1-11-7)

Computer Characteristics Chart
Adams Associates, 1960 (6-10-Supplement)

Training

"Introduction to Digital Computers and Programing," a course offered by University of Southern California, Department of Industrial Engineering

Date: First class begins February 9, 1961
Place: University campus
Content: A general orientation course in computer concepts; for business and professional people beginning a study of EDP
Information: Seymour Porter, Instructor, Department of Industrial Engineering, University of Southern California, Los Angeles, California. Telephone: RI 8-2311, Ext. 469.

ALGOL 60 Programming School

Date: April 5, 6, 1961
Place: Automatic Programming Information Centre, Brighton Technical College, Brighton, England
Information: Richard Goodman, Automatic Programming Information Centre, Brighton Technical College, Brighton, England

Operations Research Special Two-Week Programs

June 5-16, 1961: Survey of Problems, Concepts and Methods of Operations Research; and Production and Inventory Control
June 19-30, 1961: Survey of Mathematical Techniques of Operations Research; and Mathematical Programming
Fee: $400 per two-week period
Information: Professor Russell L. Ackoff, Case Institute of Technology, University Circle, Cleveland 6, Ohio

University of Michigan, College of Engineering Summer Conferences: courses are offered in operations research, management sciences, and advanced data processing. For information, write to R. E. Carroll, 126 West Engineering Building, University of Michigan, Ann Arbor, Michigan.

Industrial Engineering Seminars

Date: June 13-16, 1961
Place: Department of Industrial and Engineering Administration, Sibley School of Mechanical Engineering, Cornell University
For whom: Operating management personnel in line supervision and staff positions in industrial engineering, production engineering, engineering administration, operations research, research and development, quality control, production control, cost control, materials management, purchasing, data processing, and the controller's function.
Information: J. W. Gavett, Seminars Coordinator, Department of Industrial and Engineering Administration, Upson Hall, Cornell University, Ithaca, New York

Engineering Executive Program, presented by University of California at Los Angeles

Date: Beginning September, 1961
Place: University of California at Los Angeles, California
Fee: $350 for each semester
Requirements: Applicants must meet the acceptance standards of the Graduate Division of UCLA, and must have at least 5 years full time industrial experience.
Deadline: Applications must be submitted by March 1, 1961
The Engineering Executive Program, Dept. of Engineering, Room 4173C Engineering Bldg. Unit I, University of California, Los Angeles 24, California

Operations Research Development Program

Date: September 18, 1961 - January 26, 1962
Place: Case Institute of Technology
Fee: $1000
For whom: Intensive program at the graduate level for qualified scientists and engineers with industrial experience. Successful completion of the program is recognized by the award of a Certificate in Operations Research.
Information: Professor Russell L. Ackoff, Case Institute of Technology, University Circle, Cleveland 6, Ohio

Meetings

American Management Association 7th Annual Data Processing Conference and Exhibit

Date: March 6-8, 1961
Place: New York City (Statler-Hilton Hotel)
Program: Advances in the Data Processing "Production Line" and Management Information Systems
Information: Gabriel N. Stilian, Mgr. Administrative Services Division, American Management Association, 1515 Broadway, Times Square, New York 36, New York

IRE International Convention

Date: March 20-23, 1961
Place: New York City (Waldorf-Astoria Hotel and New York Coliseum)
Information: E. K. Gannett, Institute for Radio Engineers, Inc., 1 East 79th Street, New York 21, New York

Fifth Annual Symposium on Recent Advances in Programming Methods, sponsored by the Central Ohio Association for Computing Machinery

Date: March 25, 1961
Place: Ohio State University, Columbus, Ohio
Information: R. K. Kissinger, Publicity Chariman, c/o Nationwide Insurance Companies, 246 North High Street, Columbus, Ohio

POOL, Users Group of Royal Precision LGP-30 and RPC-4000

Date: March 27-30, 1961
Place: New Orleans, Louisiana (Jung Hotel)

UNIVAC Users Association Spring Conference

Date: April 13, 14, 1961
Place: Los Angeles, California (Statler Hilton Hotel)
Information: Donald Houghton, Secretary, Univac Users Association, Westinghouse Electric Corp., 3 Gateway Center 15-West, Pittsburgh 22, Pennsylvania

Conference on Systems and Procedures, sponsored by San Francisco Chapter, Systems and Procedures Association and University of California

Date: April 21, 1961
Place: San Francisco, California (Mark Hopkins Hotel)
Information: Robert L. Briggs, 28 Geary Street, San Francisco, California

Sixth Institute of Research Administration, sponsored by The American University, School of Government and Public Administration

Date: April 24-28, 1961
Place: Washington, D. C., The American University
Program: Topics for discussion will include, among others, significant new techniques in scientific information classification, storage, and retrieval.
Information: Dr. Lowell H. Hattery, Director, Center for Technology and Administration, The American University, 1901 F. St., N. W., Washington 6, D. C.

1961 Detroit Business Show

Date: May 2-4, 1961
Place: Detroit, Michigan (Cobo Hall)
Information: The Detroit Business Show, 817 Penobscot Building, Detroit 26, Michigan

NOMA International Conference and Office Exposition

Date: May 7-11, 1961
Place: St. Louis, Missouri (Sheraton-Jefferson Hotel and Kiel Auditorium)
Information: W. H. Latham, National Office Management Association, Willow Grove, Pennsylvania

Western Joint Computer Conference

Date: May 9-11, 1961
Place: Los Angeles, California (Ambassador Hotel)

AIIE Annual Conference

Date: May 11, 12, 1961
Place: Detroit, Michigan (Sheraton-Cadillac Hotel)
Information: A. Patrick, Program Chairman, 28093 Wildwood Trail, Farmington, Michigan

ORSA National Meeting

Date: May 25, 26, 1961
Place: Chicago, Illinois (Sheraton Blackstone Hotel)
Information: Dr. Donald H. Schiller, Caywood-Schiller Associates, 203 North Wabash Avenue, Chicago 1, Illinois

Eighth Annual Symposium on Computers and Data Processing, sponsored by Denver Research Institute

Date: June 22, 23, 1961
Place: Estes Park, Colorado (Elkhorn Lodge)
Program: Invited and offered papers on Components and Devices, Logic Design, Philosophy of Computer Design, and Computers and Education
Information: For information about symposium and submission of papers write to: W. H. Eichelberger, Denver Research Institute, University of Denver, Denver 10, Colorado

NMAA National Conference

Date: June 28-30, 1961
Place: Toronto, Canada (Royal York Hotel)
Information: R. Calvin Elliott, Executive Director, National Machine Accountants Association, 1750 West Central Road, Mt. Prospect, Illinois

8th Annual International Meeting of The Institute of Management Sciences

Date: August 23-26, 1961
Place: Brussels, Belgium (Palace of Congresses)
Information: TIMS, Box 273, Pleasantville, New York

Association for Computing Machinery National Conference

Date: September 6-8, 1961
Place: Los Angeles, California (Statler-Hilton Hotel)
Information: A. C. M. 1961 National Conference, P. O. Box 1437, Santa Monica, California

NABAC National Convention (The Association for Bank Audit, Control, and Operation)

Date: September 11-13, 1961
Place: Chicago, Illinois
Information: NABAC, 38 South Dearborn Street, Chicago 3, Illinois

International Systems Meeting

Date: October 8-11, 1961
Place: Cleveland, Ohio (Hotel Statler and Hotel Pick-Carter)
Program: "Systems Management in Transition"
Information: Systems and Procedures Association, 817 Penobscot Building, Detroit 26, Michigan

Computer Applications Symposium, sponsored by Armour Research Foundation

Date: October 24, 25, 1961
Place: Chicago, Illinois (Terrace Casino, Morrison Hotel)
Information: Robert B. Brausch, Armour Research Foundation, 10 West 35th Street, Chicago 16, Illinois

Institute on Electronics in Management, sponsored by The American University

Date: October 30--November 3, 1961
Place: The American University, Washington, D. C.
Information: Prof. Lowell H. Hattery, Director, Center for Technology and Administration, The American University, 1901 F Street, N. W., Washington 6, D. C.

TIMS-ORSA 2nd National Meeting

Date: November 8-11, 1961
Place: San Francisco, California (Jack Tar Hotel)
Information: The Institute of Management Sciences, Box 273, Pleasantville, N. Y.

References

DATA PROCESSING DIGEST does not provide copies of the original material digested or reviewed in this issue. The publishers' addresses are listed below for your convenience in writing to them for more complete information.

American Documentation
Interscience Publishers
250 Fifth Avenue
New York 1, New York

American Gas Association Monthly
420 Lexington Avenue
New York 17, New York

Automatic Control
430 Park Avenue
New York 22, New York

Banking
12 East 36th Street
New York 16, New York

Chain Store Age (Exec. Ed.)
2 Park Avenue
New York 16, New York

Communications of A.C.M.
1 East 69th Street
New York 21, New York

Cost and Management
66 King Street East
Hamilton, Ontario, Canada

Credit & Financial Management
229 Park Avenue South
New York 3, New York

Dun's Review & Modern Industry
99 Church Street
New York 8, New York

Journal of Accountancy
270 Madison Avenue
New York 16, New York

Journal of Documentation
4 Palace Gate
London W8, England

Management & Business Automation
600 West Jackson Blvd.
Chicago 6, Illinois

O & M Bulletin
Treasury Chambers
Great George Street
London SW1, England

Office Equipment & Methods
Maclean Hunter Publishing Co. Ltd
University Avenue
Toronto, Canada

Office Management & American Business
212 Fifth Avenue
New York 10, New York

Paperwork Simplification
The Standard Register Co.
Dayton 1, Ohio

Public Personnel Review
Civil Service Assembly
1313 E. 60th Street
Chicago, Illinois

Purchasing
205 E. 42nd Street
New York 17, New York

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